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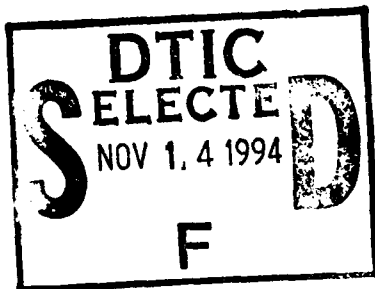


FINAL TECHNICAL REPORT

on

**A SECOND WORKSHOP ON RELIABILITY OF NONLINEAR
OCEAN STRUCTURES UNDER STOCHASTIC EXCITATION**

RESEARCH PROJECT N00014-94-1-0245



Submitted to

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TITLE: A Second Workshop on Reliability of Nonlinear Ocean Structures Under Stochastic Excitation

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SCIENTIFIC OFFICER: Julia Abrahams

Technical Objective:

The objective of the second workshop was to facilitate the advancement of the state of knowledge on the behavior of nonlinear ocean structures under stochastic excitation. The emphasis of the workshop was on the response characteristics of significance for reliability analysis. The workshop would provide a forum for: (1) ONR supported researchers under the program on "Reliability of Nonlinear Ocean Structures Under Stochastic Excitation" and experienced Navy personnel to hold discussions and exchange ideas on current Naval needs and new research ideas and directions; and (2) the coordination of research efforts among physics, mathematical sciences, and engineering researchers under the program to achieve cross-field synergistic effects.

Approach:

The approach was to hold a workshop to provide a forum for the PI's and related personnel in the reliability program. Specifically, all ONR PI's directly supported under the program, other ONR supported PI's on related research topics, and personnel from various Naval centers including ONR, David Taylor Model Basin, Naval Surface Warfare Center, Naval Sea Systems Command, and Naval Facilities Engineering Service Center were invited to participate. A combined list of participants of the first and second workshops is provided in the Appendix.

Accomplishment: A successful workshop was held on 18-19 July 1994. PI's in mathematics, physical sciences, and engineering directly supported under the program gave presentations of their research progress and discussed their specific approaches and plans for the immediate year. ONR and other Navy personnel presented state-of-the-art theoretical and practical procedures for analysis and design of naval systems and immediate research needs for their reliability analysis. A general discussion session was held immediately after the presentations on the second day. Focus of the discussion was on naval systems modeled as stochastic differential equations with excitations that were non-Gaussian processes describing wind, wave, and current effects. The two-day workshop achieved its goals of facilitating technical knowledge exchange and the fine-tuning of the research focuses of the individual PI's in the program. A proposal for a third workshop has been submitted to continue the exchange of ideas and update research progress among all the participants.

Appendix:

COMBINED LIST OF FIRST AND SECOND WORKSHOP PARTICIPANTS

Julia Abrahams, Office of Naval Research
John Barnett, Naval Surface Warfare Center
Haym Benaroya, Rutgers University
G. Q. Cai, Florida Atlantic University
Patricia Carter, Naval Surface Warfare Center
Paul Chow, Wayne State University
C. Allin Cornell, Stanford University
John F. Dalzell, Naval Surface Warfare Center
Robert Davey, Naval Sea Systems Command
Michel Dimentberg, Worcester Polytechnic Institute
Mingzhou Ding, Florida Atlantic University
Allen Engle, Naval Sea Systems Command
Jim Fein, Office of Naval Research
Michael R. Frey, Bucknell University
Allen Goldberg, Naval Research Lab
Robert Gover, Naval Research Lab
Steve Hammel, Naval Surface Warfare Center
Arthur Heinricher, Worcester Polytechnic Institute
Zhikun Hou, Worcester Polytechnic Institute
Raouf Ibrahim, Wayne State University
Satish Iyengar, University of Pittsburgh
Ahsan Kareem, Notre Dame University
Ben Kedem, University of Maryland
Rafail Khas'minskii, Wayne State University
Wolfgang Kliemann, Iowa State University
Ross Leadbetter, University of North Carolina
Shan Lin, Iowa State University
Y. K. Lin, Florida Atlantic University
Georg Lindgren, University of North Carolina
L. Felipe Martins, Worcester Polytechnic Institute
Dan Maudlin, University of North Texas
Kathryn McCreight, Office of Naval Research
Michael Monticino, University of North Texas
John M. Niedzwecki, Texas A & M University

Mohammad Noori, Worcester Polytechnic Institute
Paul Palo, Naval Facilities Engineering Service Center
Nathan Platt, Naval Surface Warfare Center
Steve Ramberg, Office of Naval Research
Bill Richardson, David Taylor Model Basin
John Rosborough, Naval Sea Systems Command
Igor Rychlik, University of North Carolina
Mike Shlesinger, Office of Naval Research
Emil Simiu, National Institute of Standards & Technology
Nozer D. Singpurwalla, George Washington University
Tom Swean, Office of Naval Research
David A. Walden, Naval Surface Warfare Center
Bruce West, University of North Texas
Steven R. Winterstein, Stanford University
Solomon C. S. Yim, Oregon State University